

Chemical Analysis Report

WQAP-2022-10-07-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

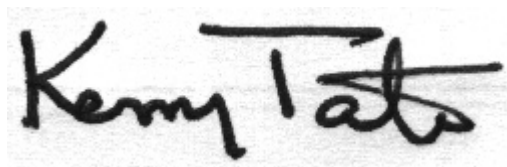
Event Description: **Algae Bloom Response NEROC-as needed**
Request ID: **RQ-2022-09-26-35**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 21-OCT-2022 10:10

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the name.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Doctor's Lake @ Mill Cove

Collection Date/Time: 10/06/2022 12:30

Field ID: NEHAB0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2361095	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420571	
		Cylindrospermopsin	0.10	U	ug/L	P420570	
		Desmethyl microcystin LR	0.25	U	ug/L	P420570	
		Microcystin HILR	0.25	U	ug/L	P420570	
		Microcystin HtyR	0.25	U	ug/L	P420570	
		Microcystin LA	0.10	U	ug/L	P420570	
		Microcystin LF	0.10	U	ug/L	P420570	
		Microcystin LR	0.25	U	ug/L	P420570	
		Microcystin LW	0.25	U	ug/L	P420570	
		Microcystin LY	0.10	U	ug/L	P420570	
		Microcystin RR	0.10	U	ug/L	P420570	
		Microcystin WR	0.50	U	ug/L	P420570	
		Neosaxitoxin	0.50	U	ug/L	P420571	
		Microcystin YR	0.25	U	ug/L	P420570	
		Saxitoxin	0.50	U	ug/L	P420571	
		Nodularin-R	0.10	U	ug/L	P420570	
2361101	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P420795	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P420758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420707	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P420698	
2361107	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P420641	

Sample Location: Dr's Lake end of Lawrence Rd

Collection Date/Time: 10/06/2022 12:15

Field ID: NEHAB0073

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2361096	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420571	
		Cylindrospermopsin	0.10	U	ug/L	P420570	
		Desmethyl microcystin LR	0.25	U	ug/L	P420570	
		Microcystin HILR	0.25	U	ug/L	P420570	
		Microcystin HtyR	0.25	U	ug/L	P420570	
		Microcystin LA	0.10	U	ug/L	P420570	
		Microcystin LF	0.10	U	ug/L	P420570	
		Microcystin LR	0.25	U	ug/L	P420570	
		Microcystin LW	0.25	U	ug/L	P420570	
		Microcystin LY	0.10	U	ug/L	P420570	
		Microcystin RR	0.10	U	ug/L	P420570	
		Microcystin WR	0.50	U	ug/L	P420570	
		Neosaxitoxin	0.50	U	ug/L	P420571	
		Microcystin YR	0.25	U	ug/L	P420570	
		Saxitoxin	0.50	U	ug/L	P420571	
		Nodularin-R	0.10	U	ug/L	P420570	
2361102	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P420795	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P420689	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420707	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P420698	
2361108	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P420641	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Swimming Pen Cr @ Whitey's Fish Camp

Collection Date/Time: 10/06/2022 13:10

Field ID: NEHAB0074

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2361097	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420571	
		Cylindrospermopsin	0.10	U	ug/L	P420570	
		Desmethyl microcystin LR	0.25	U	ug/L	P420570	
		Microcystin HILR	0.25	U	ug/L	P420570	
		Microcystin HtyR	0.25	U	ug/L	P420570	
		Microcystin LA	0.10	U	ug/L	P420570	
		Microcystin LF	0.10	U	ug/L	P420570	
		Microcystin LR	0.25	U	ug/L	P420570	
		Microcystin LW	0.25	U	ug/L	P420570	
		Microcystin LY	0.10	U	ug/L	P420570	
		Microcystin RR	0.10	U	ug/L	P420570	
		Microcystin WR	0.50	U	ug/L	P420570	
		Neosaxitoxin	0.50	U	ug/L	P420571	
		Microcystin YR	0.25	U	ug/L	P420570	
		Saxitoxin	0.50	U	ug/L	P420571	
		Nodularin-R	0.10	U	ug/L	P420570	
2361103	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P420795	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P420689	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420707	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P420698	
2361109	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P420641	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: LSJR @ 2930 SR 13

Collection Date/Time: 10/06/2022 10:20

Field ID: NEHAB0077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2361098	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420571	
		Cylindrospermopsin	0.10	U	ug/L	P420570	
		Desmethyl microcystin LR	0.25	U	ug/L	P420570	
		Microcystin HILR	0.25	U	ug/L	P420570	
		Microcystin HtyR	0.25	U	ug/L	P420570	
		Microcystin LA	0.10	U	ug/L	P420570	
		Microcystin LF	0.10	U	ug/L	P420570	
		Microcystin LR	0.25	U	ug/L	P420570	
		Microcystin LW	0.25	U	ug/L	P420570	
		Microcystin LY	0.10	U	ug/L	P420570	
		Microcystin RR	0.10	U	ug/L	P420570	
		Microcystin WR	0.50	U	ug/L	P420570	
		Neosaxitoxin	0.50	U	ug/L	P420571	
		Microcystin YR	0.25	U	ug/L	P420570	
		Saxitoxin	0.50	U	ug/L	P420571	
		Nodularin-R	0.10	U	ug/L	P420570	
2361104	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P420795	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P420689	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P420707	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P420698	
2361110	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032		mg P/L	P420641	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Dr's Lake at Camp Echockotee

Collection Date/Time: 10/06/2022 11:50

Field ID: NEHAB0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2361099	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420571	
		Cylindrospermopsin	0.10	U	ug/L	P420570	
		Desmethyl microcystin LR	0.25	U	ug/L	P420570	
		Microcystin HILR	0.25	U	ug/L	P420570	
		Microcystin HtyR	0.25	U	ug/L	P420570	
		Microcystin LA	0.10	U	ug/L	P420570	
		Microcystin LF	0.10	U	ug/L	P420570	
		Microcystin LR	0.25	U	ug/L	P420570	
		Microcystin LW	0.25	U	ug/L	P420570	
		Microcystin LY	0.10	U	ug/L	P420570	
		Microcystin RR	0.10	U	ug/L	P420570	
		Microcystin WR	0.50	U	ug/L	P420570	
		Neosaxitoxin	0.50	U	ug/L	P420571	
		Microcystin YR	0.25	U	ug/L	P420570	
		Saxitoxin	0.50	U	ug/L	P420571	
		Nodularin-R	0.10	U	ug/L	P420570	
2361105	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P420886	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P420654	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P420707	
	EPA 365.1 Rev. 2.0	Total-P	0.076		mg P/L	P420698	
2361111	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P420641	

Sample Location: Black Creek Park and Trail

Collection Date/Time: 10/06/2022 10:55

Field ID: NEHAB0096

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2361100	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420571	
		Cylindrospermopsin	0.10	I	ug/L	P420570	
		Desmethyl microcystin LR	0.25	U	ug/L	P420570	
		Microcystin HILR	0.25	U	ug/L	P420570	
		Microcystin HtyR	0.25	U	ug/L	P420570	
		Microcystin LA	0.10	U	ug/L	P420570	
		Microcystin LF	0.10	U	ug/L	P420570	
		Microcystin LR	0.25	U	ug/L	P420570	
		Microcystin LW	0.25	U	ug/L	P420570	
		Microcystin LY	0.10	U	ug/L	P420570	
		Microcystin RR	0.10	U	ug/L	P420570	
		Microcystin WR	0.50	U	ug/L	P420570	
		Neosaxitoxin	0.50	U	ug/L	P420571	
		Microcystin YR	0.25	U	ug/L	P420570	
		Saxitoxin	0.50	U	ug/L	P420571	
		Nodularin-R	0.10	U	ug/L	P420570	
2361106	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P420886	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P420654	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P420707	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P420698	
2361112	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.036		mg P/L	P420641	

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420795

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420886

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420654

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420689

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420758

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420707

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420698

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420641

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 8321B
Batch ID: P420570

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin HILR	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P420570

Component	Result	Code	Units
Microcystin LA	0.10	U	ug/L
Microcystin LF	0.10	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.10	U	ug/L
Microcystin RR	0.10	U	ug/L
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L
Nodularin-R	0.10	U	ug/L

Reference Method: EPA 8321B

Batch ID: P420571

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Neosaxitoxin	0.50	U	ug/L
Saxitoxin	0.50	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420795

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420886

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420654

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	101		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	102		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420758

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420707

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420698

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420641

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	102		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P420570

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	108		P	40 - 150
Desmethyl microcystin LR	87.7		P	40 - 150
Microcystin HILR	89.5		P	40 - 150
Microcystin HtyR	89.5		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P420570

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin LA	79.6		P	40 - 150
Microcystin LF	86.6		P	40 - 150
Microcystin LR	97.6		P	40 - 150
Microcystin LW	91.1		P	40 - 150
Microcystin LY	70.6		P	40 - 150
Microcystin RR	111		P	40 - 150
Microcystin WR	79.7		P	40 - 150
Microcystin YR	101		P	40 - 150
Nodularin-R	99.0		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P420571

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	95.8		P	40 - 150
Neosaxitoxin	86.7		P	40 - 150
Saxitoxin	85.8		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2361021	Ammonia-N	102	109	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2361105	Ammonia-N	99.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420654

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360949	Kjeldahl Nitrogen	96.6	96.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420758

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2361198	Kjeldahl Nitrogen	95.2	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2361101	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2361038	Total-P	104	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420641

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2361110	O-Phosphate-P	96.9	96.3	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P420570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360843	Cylindrospermopsin	91.9	93.1	P/P	40 - 150
2360843	Desmethyl microcystin LR	87.4	87.8	P/P	40 - 150
2360843	Microcystin HiLR	84.0	83.8	P/P	40 - 150
2360843	Microcystin HtyR	90.6	86.8	P/P	40 - 150
2360843	Microcystin LA	72.7	68.3	P/P	40 - 150
2360843	Microcystin LF	83.9	94.2	P/P	40 - 150
2360843	Microcystin LR	89.3	91.7	P/P	40 - 150
2360843	Microcystin LW	96.4	86.7	P/P	40 - 150
2360843	Microcystin LY	84.2	69.2	P/P	40 - 150
2360843	Microcystin RR	96.7	96.8	P/P	40 - 150

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P420570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360843	Microcystin WR	83.0	83.4	P/P	40 - 150
2360843	Microcystin YR	91.9	91.4	P/P	40 - 150
2360843	Nodularin-R	94.4	92.5	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P420571

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360843	Anatoxin-a	69.1	67.5	P/P	40 - 150
2360843	Neosaxitoxin	41.3	41.0	P/P	40 - 150
2360843	Saxitoxin	44.7	45.0	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2361021	Ammonia-N	3.64	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2361105	Ammonia-N	1.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420654

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360949	Kjeldahl Nitrogen	0.109	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2361050	Kjeldahl Nitrogen	0.665	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2361198	Kjeldahl Nitrogen	3.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2361101	NO2NO3-N	1.00	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2361038	Total-P	2.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420641

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2361110	O-Phosphate-P	0.465	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P420570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360843	Cylindrospermopsin	1.31	Spike	P	0 - 30
2360843	Desmethyl microcystin LR	0.464	Spike	P	0 - 30
2360843	Microcystin H1R	0.238	Spike	P	0 - 30
2360843	Microcystin HtyR	4.25	Spike	P	0 - 30
2360843	Microcystin LA	6.24	Spike	P	0 - 30
2360843	Microcystin LF	11.6	Spike	P	0 - 30
2360843	Microcystin LR	2.44	Spike	P	0 - 30
2360843	Microcystin LW	10.5	Spike	P	0 - 30
2360843	Microcystin LY	19.5	Spike	P	0 - 30
2360843	Microcystin RR	0.111	Spike	P	0 - 30
2360843	Microcystin WR	0.449	Spike	P	0 - 30
2360843	Microcystin YR	0.547	Spike	P	0 - 30
2360843	Nodularin-R	2.10	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P420571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360843	Anatoxin-a	2.43	Spike	P	0 - 30
2360843	Neosaxitoxin	0.668	Spike	P	0 - 30
2360843	Saxitoxin	0.541	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2361095
Field Sample ID: NEHAB0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	85.4	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	49.8	P	30 - 160

Lab Sample ID: 2361096
Field Sample ID: NEHAB0073

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	85.4	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	54.4	P	30 - 160

Lab Sample ID: 2361097
Field Sample ID: NEHAB0074

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	84.6	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	53.7	P	30 - 160

Lab Sample ID: 2361098
Field Sample ID: NEHAB0077

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	81.2	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	55.9	P	30 - 160

Lab Sample ID: 2361099
Field Sample ID: NEHAB0085

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	88.1	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	57.4	P	30 - 160

Lab Sample ID: 2361100
Field Sample ID: NEHAB0096

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	89.4	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	54.1	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A115149

Included Lab Sample IDs: 2361095, 2361096, 2361097, 2361098, 2361099, 2361100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	92.5	106	P/P	50 - 160
Desmethyl microcystin LR	73.3	91.8	P/P	50 - 160
Microcystin HilR	76.8	92.4	P/P	50 - 160
Microcystin HtyR	79.7	97.9	P/P	50 - 160
Microcystin LA	66.4	84.8	P/P	50 - 160
Microcystin LF	67.4	146	P/P	50 - 160
Microcystin LR	80.6	101	P/P	50 - 160
Microcystin LW	78.3	86.7	P/P	50 - 160
Microcystin LY	60.2	79.4	P/P	50 - 160
Microcystin RR	91.9	107	P/P	50 - 160
Microcystin WR	66.2	76.0	P/P	50 - 160
Microcystin YR	79.5	105	P/P	50 - 160
Nodularin-R	83.4	102	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A115151

Included Lab Sample IDs: 2361095, 2361096, 2361097, 2361098, 2361099, 2361100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	89.5	88.6	P/P	50 - 160
Neosaxitoxin	84.2	87.5	P/P	50 - 160
Saxitoxin	80.8	85.0	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A115189

Included Lab Sample IDs: 2361107, 2361108, 2361109, 2361110, 2361111, 2361112

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115217

Included Lab Sample IDs: 2361101, 2361102, 2361103, 2361104, 2361105, 2361106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115218

Included Lab Sample IDs: 2361105, 2361106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115232

Included Lab Sample IDs: 2361101, 2361102, 2361103, 2361104, 2361105, 2361106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115252

Included Lab Sample IDs: 2361102, 2361103, 2361104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.3	98.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115255

Included Lab Sample IDs: 2361101, 2361102, 2361103, 2361104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115281

Included Lab Sample IDs: 2361101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.8	96.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115289

Included Lab Sample IDs: 2361105, 2361106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	99.0	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	102	109		3.64
	Ammonia-N	98.0	99.2	101		1.25
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	96.6	96.5		0.109
	Kjeldahl Nitrogen	102				0.665
	Kjeldahl Nitrogen	97.0	95.2	99.4		3.48
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	99.5		1.00
EPA 365.1 Rev. 2.0	Total-P	102	104	107		2.42
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	96.9	96.3		0.465
EPA 8321B	Anatoxin-a	95.8	69.1	67.5		2.43
	Cylindrospermopsin	108	91.9	93.1		1.31
	Desmethyl microcystin LR	87.7	87.4	87.8		0.464
	Microcystin HiLR	89.5	84.0	83.8		0.238
	Microcystin HtyR	89.5	90.6	86.8		4.25
	Microcystin LA	79.6	72.7	68.3		6.24
	Microcystin LF	86.6	83.9	94.2		11.6
	Microcystin LR	97.6	89.3	91.7		2.44
	Microcystin LW	91.1	96.4	86.7		10.5
	Microcystin LY	70.6	84.2	69.2		19.5
	Microcystin RR	111	96.7	96.8		0.111
	Microcystin WR	79.7	83.0	83.4		0.449
	Microcystin YR	101	91.9	91.4		0.547
	Neosaxitoxin	86.7	41.3	41.0		0.668
	Nodularin-R	99.0	94.4	92.5		2.10
	Saxitoxin	85.8	44.7	45.0		0.541

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2361101, 2361102, 2361103, 2361104, 2361105, 2361106
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2361101, 2361102, 2361103, 2361104, 2361105, 2361106
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2361101, 2361102, 2361103, 2361104, 2361105, 2361106
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2361101, 2361102, 2361103, 2361104, 2361105, 2361106
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2361107, 2361108, 2361109, 2361110, 2361111, 2361112
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2361095, 2361096, 2361097, 2361098, 2361099, 2361100
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2361095, 2361096, 2361097, 2361098, 2361099, 2361100

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	10/07/2022			10/12/2022 13:07	Judith K. Clark	2361101
	10/07/2022			10/12/2022 13:08	Judith K. Clark	2361102
	10/07/2022			10/12/2022 13:10	Judith K. Clark	2361103
	10/07/2022			10/12/2022 13:11	Judith K. Clark	2361104
	10/07/2022			10/13/2022 14:42	Judith K. Clark	2361105
	10/07/2022			10/13/2022 14:46	Judith K. Clark	2361106
EPA 351.2 Rev. 2.0	10/07/2022	10/10/2022 13:58	Samantha L Bates	10/11/2022 11:02	Samantha L Bates	2361105
	10/07/2022	10/10/2022 13:58	Samantha L Bates	10/11/2022 11:03	Samantha L Bates	2361106
	10/07/2022	10/11/2022 12:07	Alexandra J Mattheus	10/12/2022 11:29	Alexandra J Mattheus	2361102
	10/07/2022	10/11/2022 12:07	Alexandra J Mattheus	10/12/2022 11:30	Alexandra J Mattheus	2361103
	10/07/2022	10/11/2022 12:07	Alexandra J Mattheus	10/12/2022 11:32	Alexandra J Mattheus	2361104
	10/07/2022	10/12/2022 12:56	Samantha L Bates	10/13/2022 10:39	Samantha L Bates	2361101
EPA 353.2 Rev. 2.0	10/07/2022			10/11/2022 08:37	Beverly Y. Sanders	2361101
	10/07/2022			10/11/2022 08:43	Beverly Y. Sanders	2361102
	10/07/2022			10/11/2022 08:44	Beverly Y. Sanders	2361103
	10/07/2022			10/11/2022 08:45	Beverly Y. Sanders	2361104
	10/07/2022			10/11/2022 08:46	Beverly Y. Sanders	2361105
	10/07/2022			10/11/2022 08:48	Beverly Y. Sanders	2361106
EPA 365.1 Rev. 2.0	10/07/2022	10/11/2022 11:50	Simonne.V. Calhoun	10/11/2022 16:15	James L Waggeberby	2361101
	10/07/2022	10/11/2022 11:50	Simonne.V. Calhoun	10/11/2022 16:17	James L Waggeberby	2361102
	10/07/2022	10/11/2022 11:50	Simonne.V. Calhoun	10/11/2022 16:18	James L Waggeberby	2361103
	10/07/2022	10/11/2022 11:50	Simonne.V. Calhoun	10/11/2022 16:19	James L Waggeberby	2361104
	10/07/2022	10/11/2022 11:50	Simonne.V. Calhoun	10/11/2022 16:20	James L Waggeberby	2361105
	10/07/2022	10/11/2022 11:50	Simonne.V. Calhoun	10/11/2022 16:21	James L Waggeberby	2361106
EPA 365.1 Rev. 2.0 dissolved	10/07/2022			10/07/2022 14:25	Elise M. Gillis	2361110
	10/07/2022			10/07/2022 14:27	Elise M. Gillis	2361107
	10/07/2022			10/07/2022 14:28	Elise M. Gillis	2361108
	10/07/2022			10/07/2022 14:29	Elise M. Gillis	2361109
	10/07/2022			10/07/2022 14:30	Elise M. Gillis	2361111
	10/07/2022			10/07/2022 14:31	Elise M. Gillis	2361112
EPA 8321B	10/07/2022	10/07/2022 11:00	Manjita Shrestha	10/07/2022 13:03	Manjita Shrestha	2361095
	10/07/2022	10/07/2022 11:00	Manjita Shrestha	10/07/2022 13:20	Manjita Shrestha	2361096
	10/07/2022	10/07/2022 11:00	Manjita Shrestha	10/07/2022 13:37	Manjita Shrestha	2361097
	10/07/2022	10/07/2022 11:00	Manjita Shrestha	10/07/2022 13:54	Manjita Shrestha	2361098
	10/07/2022	10/07/2022 11:00	Manjita Shrestha	10/07/2022 14:11	Manjita Shrestha	2361099
	10/07/2022	10/07/2022 11:00	Manjita Shrestha	10/07/2022 14:28	Manjita Shrestha	2361100
	10/07/2022	10/07/2022 13:00	Manjita Shrestha	10/07/2022 19:55	Manjita Shrestha	2361095
	10/07/2022	10/07/2022 13:00	Manjita Shrestha	10/07/2022 20:09	Manjita Shrestha	2361096
	10/07/2022	10/07/2022 13:00	Manjita Shrestha	10/07/2022 20:23	Manjita Shrestha	2361097
	10/07/2022	10/07/2022 13:00	Manjita Shrestha	10/07/2022 20:36	Manjita Shrestha	2361098

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	10/07/2022	10/07/2022 13:00	Manjita Shrestha	10/07/2022 20:50	Manjita Shrestha	2361099
	10/07/2022	10/07/2022 13:00	Manjita Shrestha	10/07/2022 21:04	Manjita Shrestha	2361100